Grandbeing®

User Manual

N143

N373 & N383

Presentation Switcher & H.264 Encoder and Decoder

Version: V1.0.1

Important Safety Instructions

Note:

In case of any content change, we are sorry for no further notice.

Warning:

To reduce the risk of fire, electric shock or product damage:

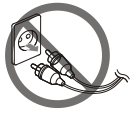
1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

6. Clean this apparatus only with dry cloth.

2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.

7. Unplug this apparatus during lightning storms or when unused for long periods of time.

3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.



8. Protect the power cord from being walked on or pinched particularly at plugs.

4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Only use attachments / accessories specified by the manufacturer.

5. Do not place sources of naked flames, such as lighted candles, on the unit.

10. Refer all servicing to qualified service personnel.

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Introduction

Overview

N143

N143, delivering media over IP networks, is a high performance live H.264 streaming media encoder. N143 is also a switcher with eight inputs and three outputs. N143 features four HDMI inputs, two CVBS inputs, two VGA inputs, one HDMI output, one VGA output and one Ethernet output. In addition, N143 supports four stereo audio inputs respectively associated to the VAG 1, VGA 2, CVBS 1 and CVBS 2 inputs, six microphone inputs and one stereo output extracted from the HDMI output. N143 can be used with decoders N373 and N383 to provide complete end-to-end streaming media system. N143 adopts standard H.264/MPEG-4 AVC encoding and outputs two IP streams, a stream from 480p@60 to 1920x1200@60 and a 480p@60 stream. N143 outputs resolutions from 480p@60 to 1920x1200@60 scaled based on the sink EDID. High performance signal processing scales and optimizes video input signals to obtain the intended viewing effects. Encoding controls can also adjust bit rate and quality. N143 expands Audio/Video system capability by extending the Audio/Video signals over IP networks.

N373

N373 is a high performance live H.264 decoder used with N143 encoder to provide complete end-to-end streaming-media transmission system. N373 supports video wall function. In addition, it supports streaming resolutions and refresh rates up to 1920x1200@60. The output resolutions range from 480p@60 to 1920x1200@60 scaled based on the sink EDID. With the computer control software, this compact decoder offers multiple integrated features, such as RS232, IR for flexible control and management options.

N383

N383 is a high performance live H.264 decoder used with N143 encoder to provide complete end-to-end streaming-media transmission system. N383 can decode up to 16 IP streams. When N383 receives a single IP stream, it has the same decoding features as N373's, such as supporting streaming resolutions and refresh rates from 480p@60 to 1920x1200@60 and output resolutions from 480p@60 to 1920x1200@60 scaled based on the sink EDID. When receiving two or more IP streams (up to 16 IP streams), it supports streaming resolutions and refresh rates up to 480p@60 and output resolutions from 480p@60 to 1920x1200@60 scaled based on the sink EDID. With the computer control software, this compact decoder offers multiple integrated features, such as RS232, IR for flexible control and management options.

Features

N143

- Allows up to eight inputs be switched to three audio or video outputs.
- Supports four stereo audio inputs corresponding to the VAG 1, VGA 2, CVBS 1 and CVBS 2 inputs, six microphone inputs and one stereo output extracted from the HDMI output.
- Streams HDMI signals over IP networks
- Supports H.264/MPEG-4 AVC compression standard.
- Use with H.264 decoder N373 to provide features, such as video wall function, extending HDMI signals over IP networks, matrix switching control over LAN.
- Use with H.264 decoder N383 to provide multi-picture viewing effects (up to 16 pictures) in a single screen in addition to the same features as N373.
- Supports the HDMI input resolution up to 1080p.
- Outputs two IP streams, a stream from 480p@60 to 1920x1200@60 and a 480p@60 stream.
- Supports output resolutions from 480p@60 to 1920x1200@60 scaled based on the sink EDID.
- Scales and optimizes video input signals for the intended viewing effects.
- Auto input format detection to provide the appropriate decoding and signal processing.
- Encoding bit rate is selectable from 1K~40Mbps.
- Supports TCP/IP, Telnet, UDP, IGMP and H.264
- Supports AutoIP configuration.
- Automatically detected by the control software.

- Uses with the IP control box TK-N006-000 for matrix control and management via LAN.

N373

- Supports live IP video stream decoding.
- Uses with encoder N143 to provide a complete end-to-end stream transmission system, supporting seamless switching.
- Supports streaming resolutions and refresh rates from 480p@60 to 1920x1200@60.
- Supports output resolutions from 480p@60 up to 1920x1200@60 based on the sink EDID.
- Supports video wall function
- IR pass-through control for sources or sinks over IP networks.
- RS232 for debug or to control a RS232 device.
- Automatic aspect ratio filling, following and fitting management.
- Support TCP/IP, Telnet, UDP, IGMP and H.264
- Supports PoE
- Supports AutoIP configuration.
- Automatically detected by control software.
- Uses with the IP control box TK-N006-000 for matrix control and management via LAN.

N383

- Supports live IP video stream decoding
- Uses with encoder N143 to provide complete stream transmission system, supporting seamless switching.
- Supports streaming resolutions and refresh rates from 480p@60 to 1920x1200@60.

- Supports output resolutions from 480p@60 to 1920x1200@60 based on the sink EDID.
- Supports multi-picture viewing effects in a single screen by automatically dividing the screen into 1, 4, 9 or 16 complete pictures based on the number of IP streams.
- IR pass-through control for sources or sinks over IP networks.
- RS232 for debug or to control a RS232 device.
- Automatic aspect ratio filling, following and fitting management.
- Support TCP/IP, Telnet, UDP, IGMP and H.264
- Supports PoE
- Supports AutoIP configuration.
- Automatically detected by control software.
- Uses with the IP control box TK-N006-000 for matrix control and management via LAN.

Package Contents

N143

1 x N143

1 x Power cable

1 x Phoenix male connector (3.5 mm 3 pins)

2 x Mounting ear

N373

1 x N373

1 x Power cable

1 x Power adapter

1 x Phoenix male connector (3.5 mm 3 pins)

1 x Phoenix male connector (3.5 mm 5 pins)

2 x Mounting ear

N383

1 x N383

1 x Power cable

1 x Power adapter

1 x Phoenix male connector (3.5 mm 3 pins)

1 x Phoenix male connector (3.5 mm 5 pins)

2 x Mounting ear

Specifications

N143

Technical	
I/O Connections	4 × HDMI IN 2 x VGA IN 2 x CVBS IN 1×HDMI OUT 1x VGA OUT 1× RJ45 2 × RS232 (3.5mm phoenix)
Power Supply	AC 100~240V 50/60Hz
Power Consumption	20 Watts
Input Video Signal	1.2 volts p-p
Input DDC Signal	5 volts p-p (TTL)
Data Rate	1K~40Mbps, configurable
Maximum Distance	100 meters
Video Format Supported	**Input:** ● **HDMI**: 480i, 480p, 576i, 576p, 720p,1080i, 1080p ● **VGA**: 640x480@60, 800x600@60, 1024x768@60, 1280x720@60, 1280x768@60, 1280x800@60, 1280x1024@60, 1360x768@60, 1400x1050@60, 1440x900@60, 1600x1200@60, 1680x1050@60, 1920x1080@60, 1920x1200@60

Technical	
	● **CVBS**: 480i@NTSC
	Output: ● **HDMI**: 480p@60~1920x1200@60 scaled based on the sink EDID. ● **VGA**: Follows the HDMI output. ● **Ethernet**: 480p@60~1920x1200@60
Output Video	HDMI 1.3
Control Method	RS232 LAN
ESD Protection	Human body model: ±8kV (air-gap discharge) ±4kV (contact discharge)
Surge Protection	Voltage: ±1kV
Operating Temperature	32°F to 95°F (0°C to 35°C) 10% to 90%, non-condensing
Storage Temperature	-4°F to 140°F (-20°C to 70°C) 10% to 90%, non-condensing
System Requirements	● HDMI equipped source devices and sinks, connected with HDMI cables. ● CVBS equipped source devices, connected with CVBS cables. ● VGA equipped source devices and sinks, connected with VGA cables. ● Industry standard CAT5e/6 cables or above. ● A 10/100Base-T Ethernet switch or above.

General	
Case Dimensions (W x H x D)	● 525 mm x 122 mm x 327 mm ● 20.7" x 4.8" x 12.9"
Device Dimensions (W x H x D)	● 440 mm x 88 mm x 211 mm ● 17.3" x 3.4" x 8.3"
Mass (Main unit)	3.5 kg
Certification	CE, FCC, RoHS

N373/N383

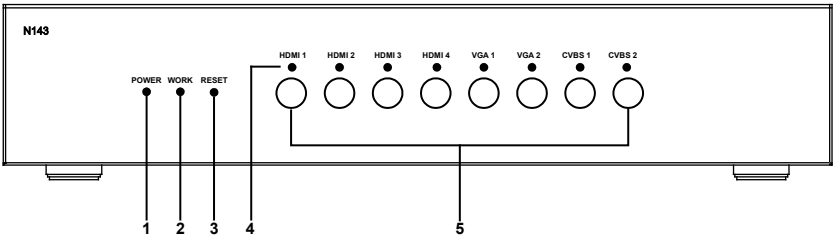
Technical	
I/O Connections	1 × RJ45 1 × AUDIO OUT (3.5mm phoenix) 1 × HDMI OUT 2 × RS232 (3.5mm phoenix) 1 × IR TX (3.5mm phoenix) 2 × IO/IN (3.5mm phoenix) 2 × RELAY (3.5mm phoenix)
Power Supply	12V 2A DC, 5.5mm
Power Consumption	4.56 Watts
Input Video Signal	1.2 volts p-p
Input DDC Signal	5 volts p-p (TTL)
Maximum Distance	100 meters
Video Format Supported	**Input:** Ethernet: 480p@60~1920X1200@60 for N373, 480p@60 for N383. **Output:** HDMI: 480p@60~1920X1200@60 scaled based

Technical	
	on the sink EDID.
Output Video	HDMI 1.3
Output Audio	Stereo (reserved)
Control Method	RS232 LAN
ESD Protection	Human Body Model: ±8kV (air-gap discharge) ±4kV (contact discharge)
Surge Protection	Voltage: ±1k V
Operating Temperature	32°F to 95°F (0°C to 35°C) 10% to 90%, non-condensing
Storage Temperature	-4°F to 140°F (-20°C to 70°C) 10% to 90%, non-condensing
System Requirements	● HDMI equipped sinks, connected with HDMI cables. ● Industry standard CAT5e/6 cables or above. ● A 10/100Base-T Ethernet switch or above.
General	
Case Dimensions (W x H x D)	● 390 mm x 92 mm x 220 mm ● 15.4" x 3.6" x 8.7"
Device Dimensions (W x H x D)	● 269 mm x 24 mm x 110 mm ● 10.6" x 0.9" x 4.3"
Mass (Main unit)	0.78 kg
Certification	CE, FCC, RoHS

Panel

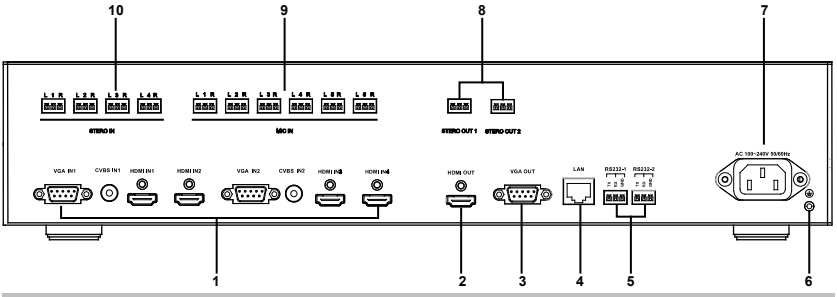
N143

Front Panel



ID	Name	Description
1	Power indicator	Indicates the power status.
2	Work indicator	Indicates the working status.
3	Reset button	Presses and holds this button to restore the device to its default settings.
4.	Button indicator	Lit when a button is selected.
5	Selection button	Presses this button to select the input sources.

Rear Panel



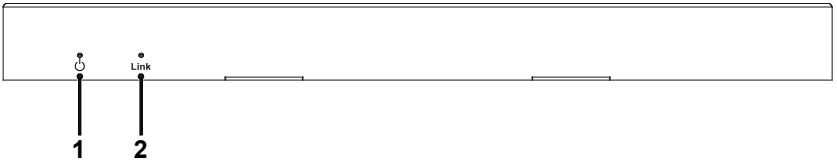
ID	Name	Description
1	Source input	**2 x VGA IN:** Connects to the VGA source devices via the VGA cables. **2 x CVBS IN:** Connects to the CVBS source devices via the CVBS cables. **4 x HDMI IN:** Connects to the HDMI source devices via the HDMI cables.
2	HDMI OUT	Connects to a HDMI sink via a HDMI cable.
3	VGA OUT	Connects to a VGA sink via a VGA cable.
4	LAN port	Connects to a 10/100Base-T Ethernet switch with a CAT5e/6 cable.
5	RS232	**RS232-1:** Connects to a RS232 debug device, such as a computer. **RS232-2:** Connects to a RS232 device.
6	GND	Grounding.
7	Power	Connects to the AC power supply via a power cable.

ID	Name	Description
8	STERO OUT	**2 x STERO OUT:** Connects to the audio receivers to extract audio from HDMI out.
9	MIC IN	**6 x MIC IN:** Connects the microphones to input audio.
10	STERO IN	**4 x STERO IN:** Connects the audio input devices corresponded to the VAG 1, VGA 2, CVBS 1 and CVBS 2 inputs.

N373/N383

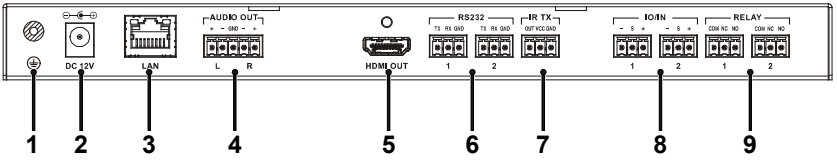
N373 and N383 have the same appearance.

Front Panel



ID	Name	Description
1	Power indicator	**On:** N373/N383 is powered on. **Off:** N373/N383 is powered off.
2	Link indicator	**Steady On:** N143 and N373/N383 are linked to each other. **Flashing:** N143 and N373/N383 are not linked to each other.

Rear Panel

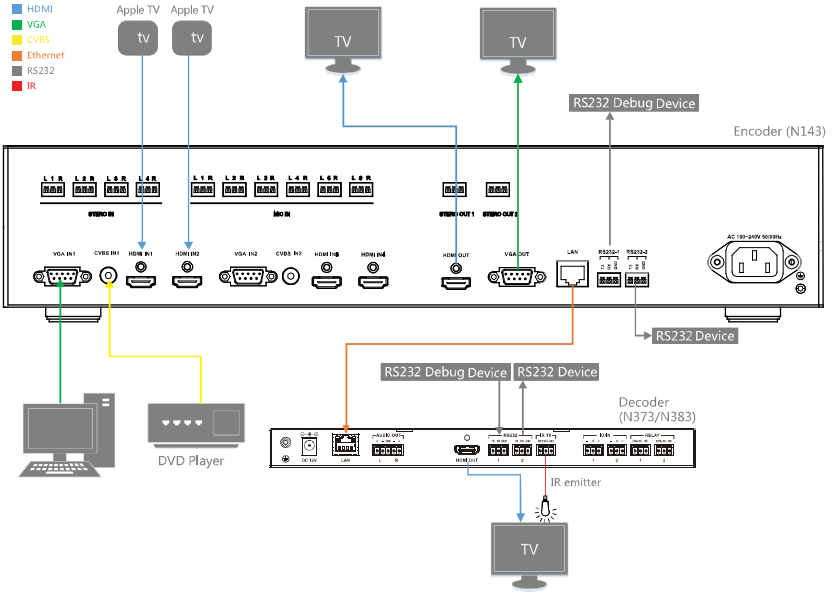


ID	Name	Description
1	GND	Grounding
2	Power	Connects to a 12V/2A DC power supply via a power adapter.
3	LAN	Connects to a 10/100Base-T Ethernet switch with a CAT5e/6 cable.
4	AUDIO OUT	Reserved port.
5	HDMI OUT	Connects to a HDMI sink via an HDMI cable.
6	RS232	RS232 1: Connects to a RS232 debug device, such as a computer. RS232 2: Connects to a RS232 device.
7	IR TX	Connects to an IR emitter.
8	IO/IN	Reserved ports.
9	Relay	Reserved ports.

Typical Application

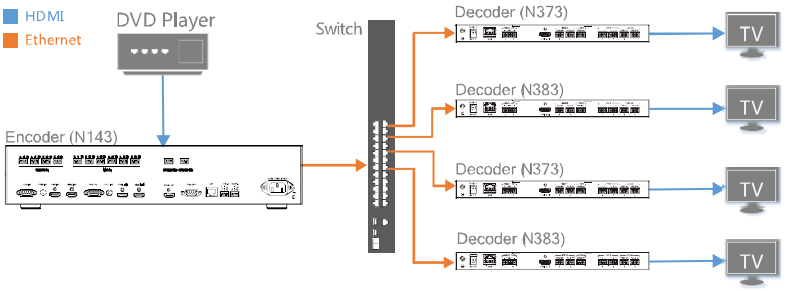
One Encoder to One Decoder

If one encoder N143 and one decoder N373/N383 are used, you can enjoy the full-screen viewing effects in the sinks connected to the N373/N383.



One Encoder to Multiple Decoders

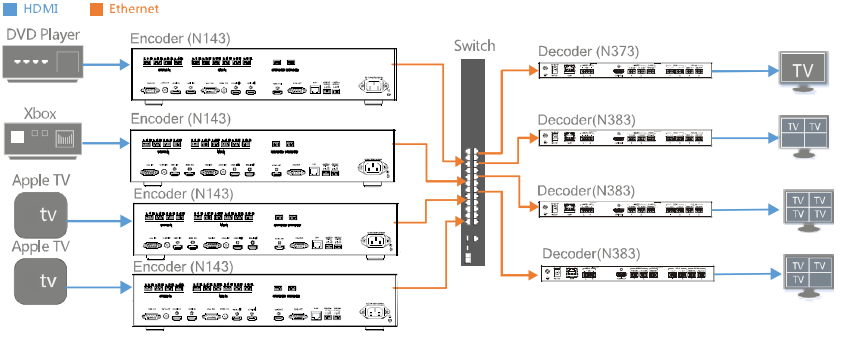
If one encoder N143 and multiple decoders N373/N383 are used, you can enjoy the full-screen viewing effects in the sinks connected to the N373/N383.



Multiple Encoders to Multiple Decoders

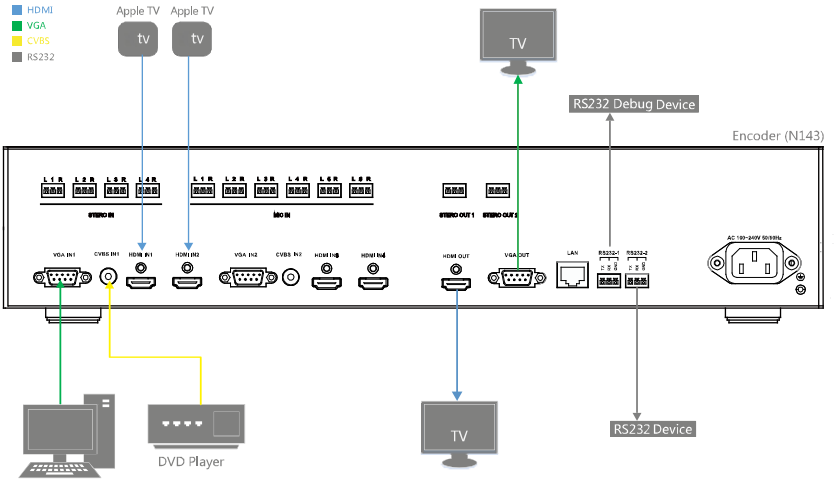
If multiple encoders N143s and decoders N373/N383 are used, you can:

- Enjoy the full-screen viewing effects in the sinks connected to the N373/N383 if one N143 is linked.
- Enjoy multi-picture viewing effects in the sinks connected to the N383s if multiple N143s are linked.



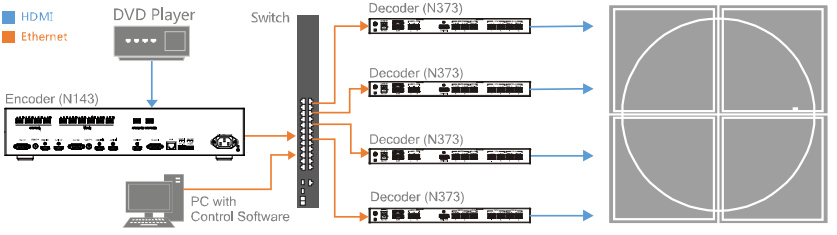
Switching Inputs in One Encoder

With one encoder N143, you can switch between the four source devices to enjoy the viewing effects in the sinks connected through HDMI or VGA ports.



Video Wall Function

N373 supports video wall function in the single host mode. The diagram is shown as follows.



Viewing Multiple Pictures in One Sink

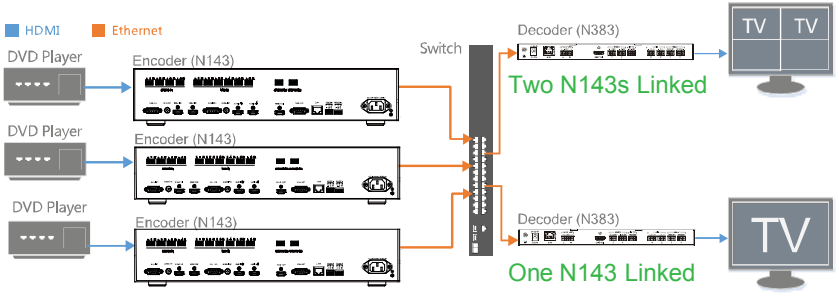
Based on the number of IP streams from the sources, a single screen can be divided into 1, 4, 9 or 16 parts with each part displays a complete picture. For details, see the following table.

Decoder	Number of N143 linked	Viewing effects on the screen
N383	1	1 complete picture filling the entire

Decoder	Number of N143 linked	Viewing effects on the screen
		screen.
	2~4	4 complete pictures filling the entire screen
	5~9	9 complete pictures filling the entire screen.
	10~16	16 complete pictures filling the entire screen.

Note:

When the number of N143 linked to N383 is from 2~3, 5~8, or 10~15, the unoccupied parts of the screen show no picture. For example, N383 below is linked to one or two N143s, the sinks connected to N383s show one or two complete pictures.



Hardware Installation

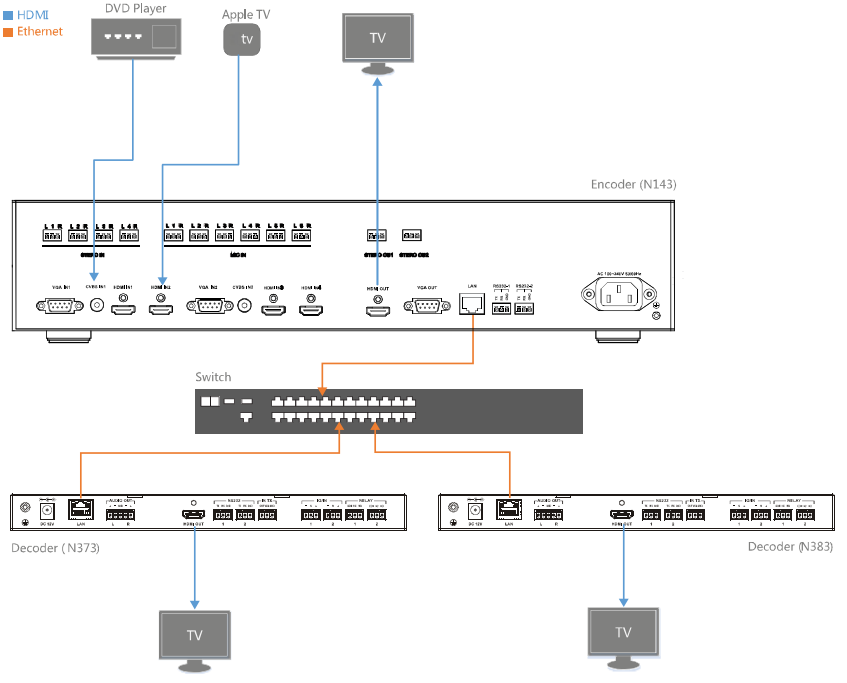
Warnings:

- Before the installation, disconnect the power supplies from all the devices.
- During the installation, connect or disconnect the cables gently.

1. Connect one DVD player, one Apple TV and one TV to the N143 via two HDMI cables and one VGA cable.
2. Connect one TV to the N373 via a HDMI cable.
3. Connect one TV to the N383 via a HDMI cable.
4. Connect a computer, N143, N373, N383 to a 10/100Base-T Ethernet switch via CAT5e/6 cables.
5. Connect the devices to the power supplies and start the operations.

Note:

If the switch doesn't support PoE function or is unable to provide enough power, connect N373 and N383 to the power supplies with their power adapters.


HDMI
Ethernet
DVD Player
Apple TV
tv
TV
Encoder (N143)
Switch
Decoder (N373)
Decoder (N383)
TV
TV

Operating with Control Software

You can use **HDMI over IP console** control software to manage and control the connected devices. You just need to extract the provided compression file to your computer and double-click HDMIoverIPConsole.exe to start it without additional installation processing. This section takes **HDMIoverIPConsoleV2.4.13** as an example.

Before Using the Control Software

Before using the control software, you need to set a static IP address on your computer and configure your operating system firewall to allow this software to communicate on your network.

Note:

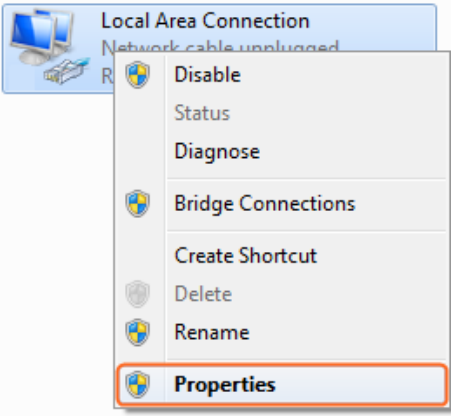
The operation system must be Windows XP or a later version.

Setting a Static IP on Your Computer

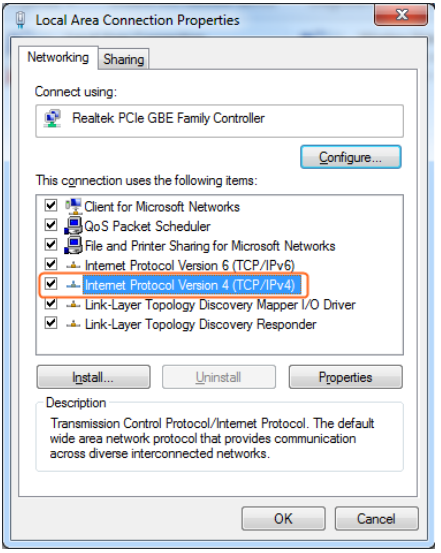
Before using the control software, make sure that the IP address of your computer installed with this software and TX/RX are in the same network segment. By default, TX/RX uses AutoIP protocol, and their IP address is 169.254.X.X and subnet mask is 255.255.0.0.

A computer running Windows 7 is used as an example to configure a static IP address.

1. Click **Start** menu, choose **Control Panel** > **Network and Internet** > **Network and Sharing Center** > **Change Adapter Settings**, right click **Local Area Connection**, and then choose **Properties**.

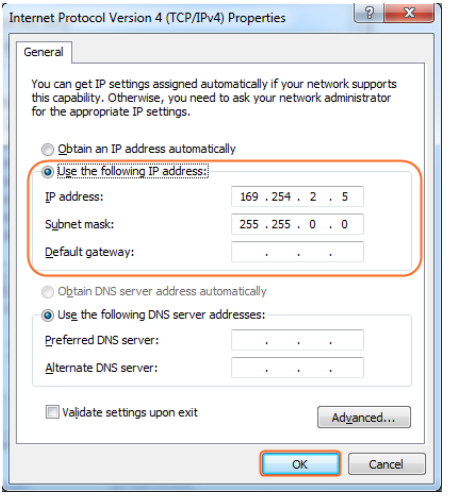


2. Double-click **Internet Protocol Version 4 (TCP/IPv4)**.



3. Select **Use the following IP address**, after configuring the following settings in the provided example, and then click **OK**.

   - **IP address**: 169.254.2.5
   - **Subnet mask**: 255.255.0.0


Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
169 . 254 . 2 . 5
Subnet mask:
255 . 255 . 0 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

4. Click **OK**.

Configuring Your Operating System Firewall

Your operating system firewall may block some features of the control software to prevent it controlling TX and RX.

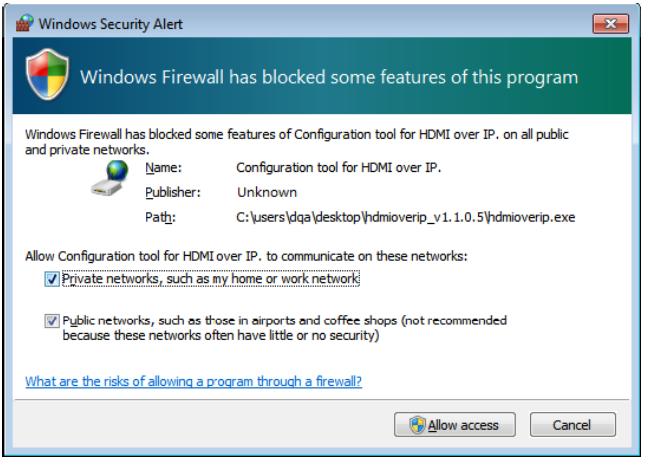
A computer running Windows 7 is used as an example to configure your operating system firewall in two methods.

Method 1:

You can configure the firewall in the **Windows Firewall** panel on your computer. For more information, see *HDIP Product FAQ*.

Method 2:

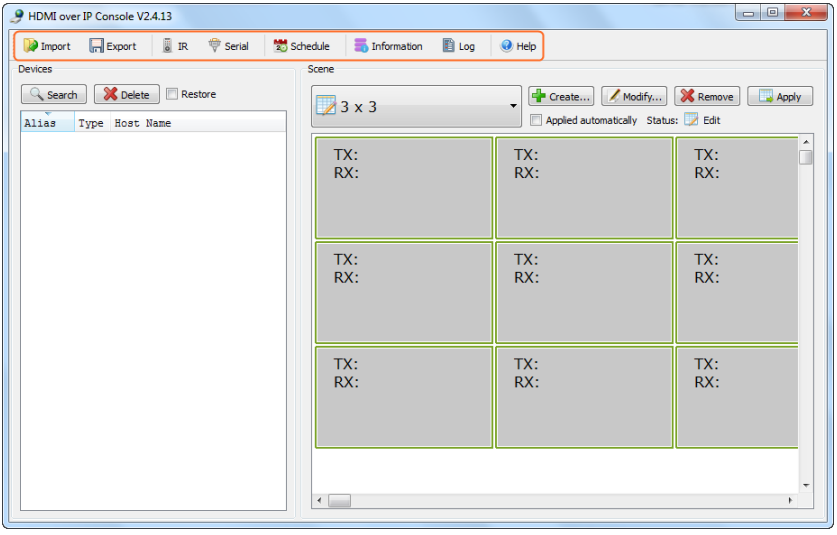
You can also configure the firewall when starting the control software. Then, **Windows Security Alert** window may display. If so, select a network you allow this software to communicate on, for example, select both private and public networks. And then click **Allow access** (with Administration authority).


Windows Security Alert
Windows Firewall has blocked some features of this program
Windows Firewall has blocked some features of Configuration tool for HDMI over IP. on all public and private networks.
Name: Configuration tool for HDMI over IP.
Publisher: Unknown
Path: C:\users\dqa\desktop\hdmioverip_v1.1.0.5\hdmioverip.exe
Allow Configuration tool for HDMI over IP. to communicate on these networks:
Private networks, such as my home or work network
Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security)
What are the risks of allowing a program through a firewall?
Allow access
Cancel

Control Software Instructions

Tool Bar in Control Software

You can click the icons in the tool bar to quickly configure the control software.



GUI Element	Description
Import	Allows the user to import past saved devices and scene configuration file for easy setup and multiple same projects which require the same configuration.
Export	Allows the user to export the current devices and scene configuration file for easy recall and future setup.
IR	Allows the user to control the source or sink.
Serial	Allows the user to send commands to a RS232 device for device control and configuration.
Schedule	Allows the user to create a schedule for a configuration layout to run automatically at a specified time.
Information	Enables the device information window to notify the user this device's alias, device type, host name and IP address.
Log	Enables the log information window to notify the user the software operation and device communication information, which can be used for troubleshooting. **Note:** It is recommended that you turn on the log only when necessary, such as use for troubleshooting.
Help	Notifies the user the information on the control software version.

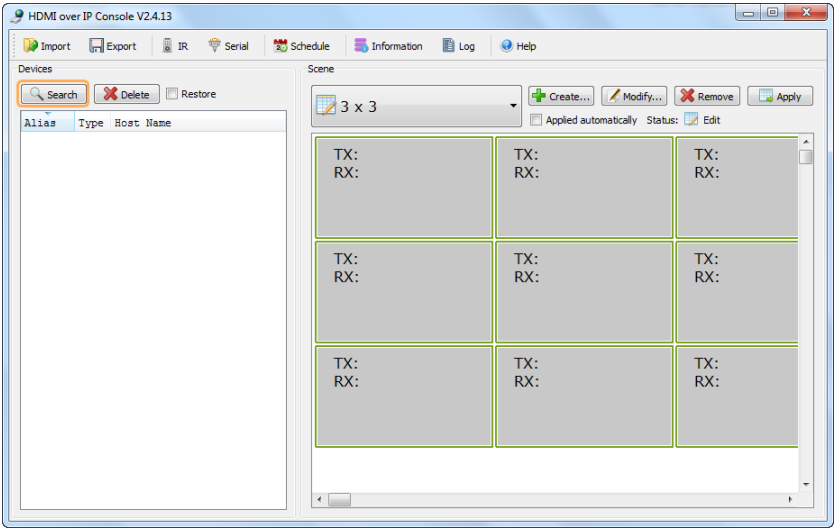
Searching Devices

1. Double-click **HDMIoverIPConsole.exe** to launch the control software.

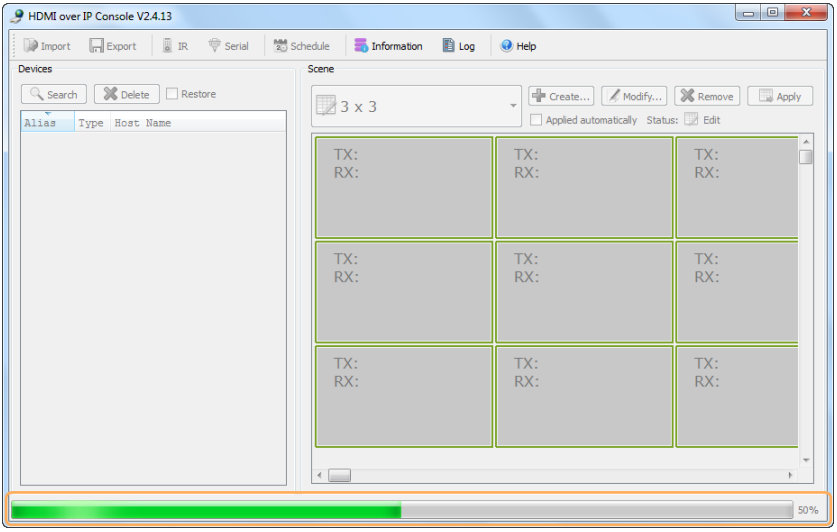
Note:

If **Windows Security Alert** window is displayed, see Configuring Your Operating System Firewall for solutions.

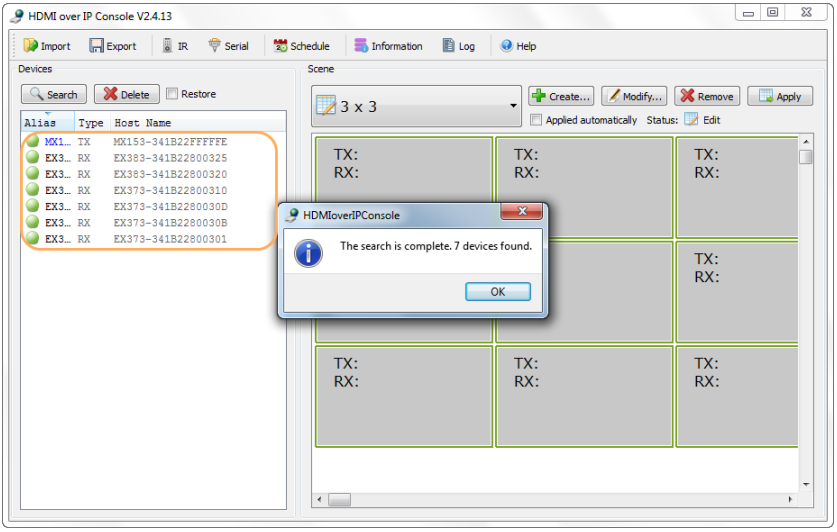
2. Click **Search** as shown below to start searching TX/RX.



Please wait until the search is completed, it may take a few seconds. All functions are disabled when the search is in progress.



3. When the search is completed the discovered devices are displayed in the **Devices** list. The devices will show active green circles .

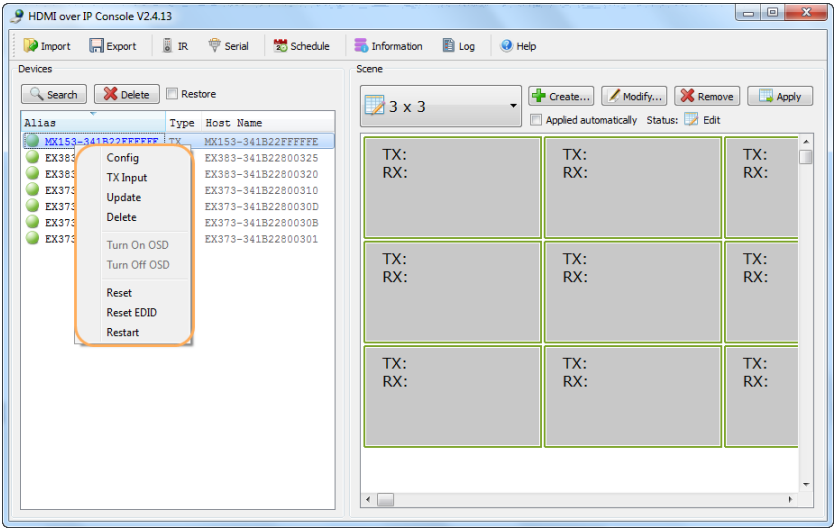


Note:

- If the TX and RX devices have been set before by this control software, select **Restore** check box which will start searching the devices and automatically restore to the previous matrix configurations.
- If no devices are found, see Question 1 in Troubleshooting for solutions.

Device Parameter Settings

In the **Devices** list, right-click on a single or more devices, all the authorized operations are displayed in the shortcut menu. The following table describes how to set the device parameters.

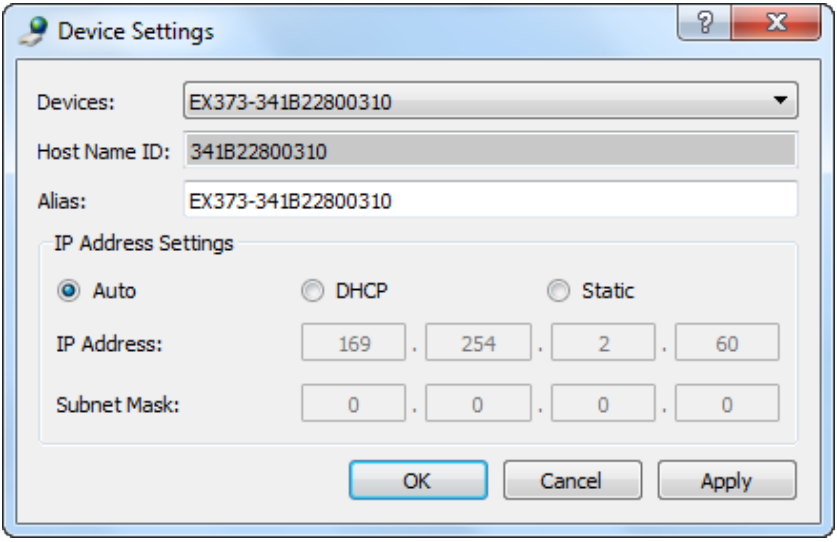


Operation	Description
Config	Configures the device parameters, such as device alias, IP address settings (Auto, DHCP, Static).
TX input	Configures the video input and output parameters, such as choosing a source type between VGA, CVBS and HDMI inputs, setting the bitrates, profile.
Update	Updates one or more device status, such as alias, type or hostname.
Delete	Deletes one or more devices that have been searched and listed below in the **Devices** list. To display the devices that you have searched, click **Search**.
Turn On OSD	Not available.
Turn Off OSD	Not available.
Reset	Restores one or more devices to their factory settings. This operation may take a few seconds. When reset is

Operation	Description
	completed, the devices will become active again. It's recommended that you click **Delete** to remove the original devices and click **Search** to display them again.
Reset EDID	Not available.
Restart	Restarts a single or more devices that have been searched and listed below in the **Devices** list. This operation may take a few seconds. When restart is completed, the devices will become active again.

Device Settings Window Introduction

In the **Devices** list, right-click on any device, and then choose **Config** to display **Device Settings** window. Or you can also double-click on any device to display this window.

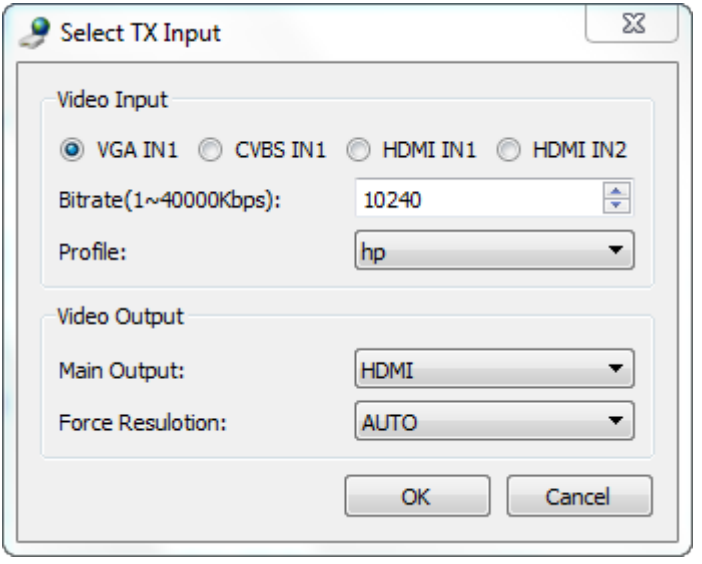


GUI Element	Attribute	Description
Devices	Device parameters	Indicates the current device on which you perform operations. You can select another device from this drop down list box for device setting.
Host Name ID		Indicates the host name ID, which is generated by the system and cannot be changed.
Alias		Indicates the user-defined device name that contains a maximum of 80 characters.
Auto	IP distribution modes	Indicates a mode in which the device is assigned an IP address automatically.
DHCP		Indicates a mode in which the device is assigned an IP address by using a router or switch with a DHCP server.
Static		Indicates a mode in which the device is assigned an IP address manually. In this case, you need to enter an IP address (169.254.x.x) in **IP Address** and 255.255.0.0 in **Subnet Mask**.
IP Address	Network parameters	Indicates the device IP address, which can be set only when the static mode is selected.
Subnet Mask		Indicates the device subnet mask, which can be set only when the static mode is selected.
OK	Buttons	Saves current settings, applies them to the device, and closes this dialog box.
Cancel		Cancels current settings and closes this dialog box.
Apply		Saves current settings and applies them to the device without closing this dialog box.

Note:

If any changes are made to the IP distribution modes, for example it is changed from **Static** to **Auto** or **DHCP**, restart the device and search it again in the control software.

TX Input Window Introduction

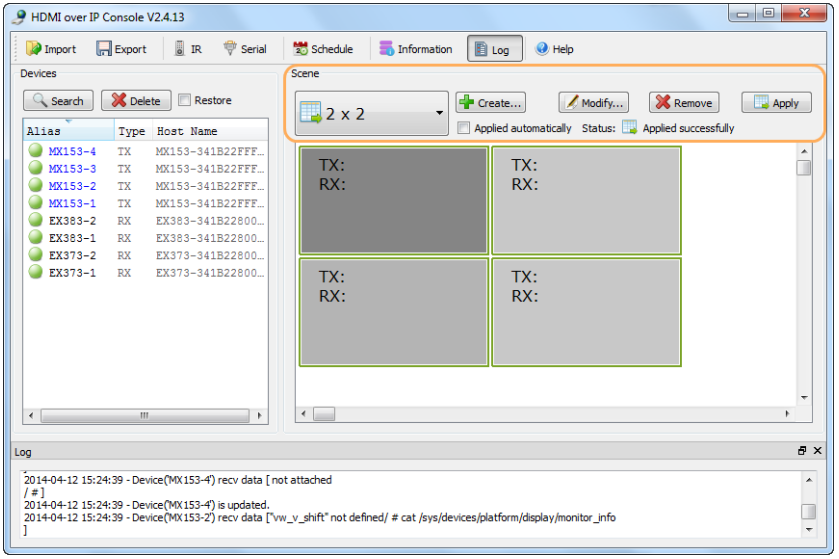


GUI Element	Attribute	Description
Video Input	VGA IN 1, CVBS IN 1, HDMI IN 1, HDMI IN 2	Chooses a source type between VGA, CVBS and HDMI inputs.
	Bitrate	Sets the bitrates of video input from 1~40000Kbps.
	Profile	Sets the profile of video input, such as hp,

GUI Element	Attribute	Description
		mp, bp.
Video Output	Main Output	Not available.
	Force Resolution	Not available.

Matrix Setting Introduction

On the home screen of the control software, the **Scene** area displays the status of all TX and RX connections.

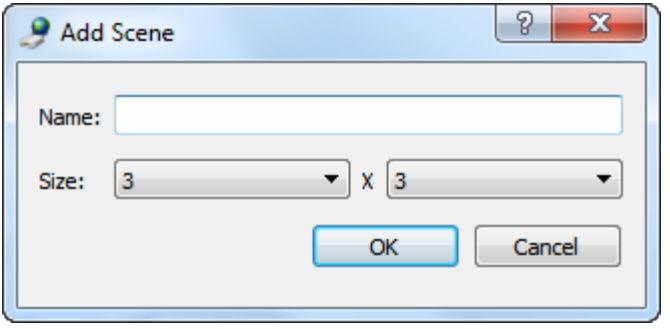


GUI Element	Attribute	Description
Create	Buttons	Creates a new configuration scene.
Modify		Modifies the current configuration scene.
Remove		Deletes the current configuration scene.

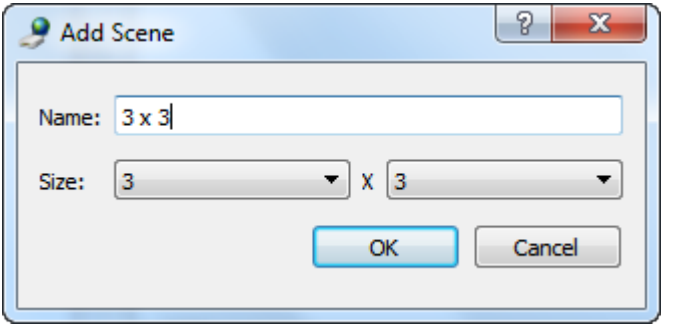
GUI Element	Attribute	Description
Apply		Applies the configuration connection settings to the connected devices.
Applied automatically	Option	Indicates that settings are applied immediately after you configure the intersection between TX and RX.
Status	Icons	Indicates that the matrix created by devices is restored. Indicates that matrix settings are in progress. Indicates that matrix settings are applied successfully. Indicates that matrix settings fail to be applied.

Creating the Scene Window

1. Click **Create** in the **Scene** area, the **Add Scene** dialog box is displayed.



2. Change the configuration layout, for example setting **Name** to 3 x 3 and **Size** to 3 x 3.



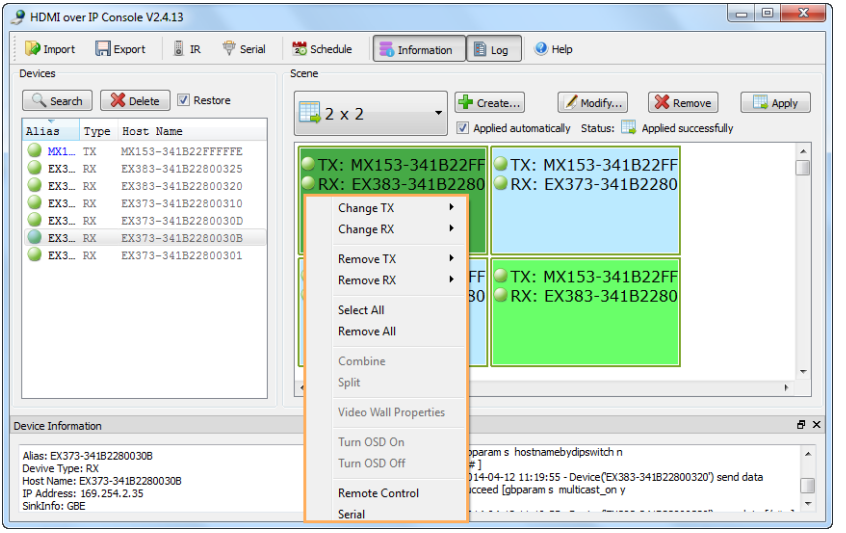
3. Click **OK**.

Note:

To modify the current configuration layout, click **Modify** on the tool bar.

Scene Area Window Introduction

You can right click a cell in the Scene area to perform the operations from the shortcut menu.



GUI Element	Description
Change TX	Selects which TX for a source to be displayed from the searched devices.
Change RX	Selects which RX for a sink to output image from the searched devices.
Remove TX	Deletes the TX from the searched devices in the devices column.
Remove RX	Deletes the RX from the search devices in the devices column.
Select All	Selects all the cells in the **Scene** area to combine them to enable the video wall mode, select or delete a TX for all RX.
Remove All	Removes all the devices in the current **Scene** area.
Combine	Combines all the cells to enable the video wall mode after all are selected.
Split	Cancels the combine function to re-enable the matrix mode and have each monitor single.
Video Wall Properties	Configures the video wall properties after it's enabled.
Turn OSD On	Not available.
Turn OSD Off	Not available.
Remote control	Sends IR commands to control the source devices or sinks using the IR library built in the control software from your computer.
Serial	Sends commands to a RS232 device connected to N143 or N373/N383 for device configuration and control.

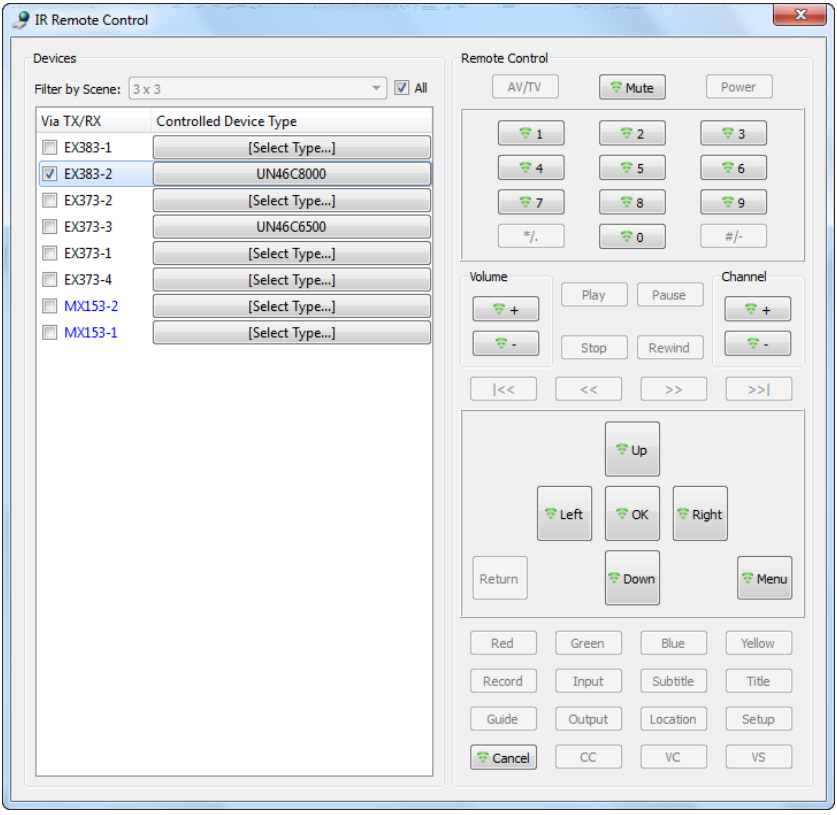
Tips:

- You can also click and drag the desired TX and RX from the **Devices** list to cells in the **Scene** area and apply the configuration connection settings.
- To select multiple cells, press and hold **Ctrl** while clicking the desired cells.
- To quickly configure multiple consecutive cells, hold the right mouse button and drag to select the cells to display the shortcut menu to perform the operations.

IR Remote Control

The TX/RX has an IR library built in the control software which allows the user to easily send IR commands to control source devices or sinks from your computer.

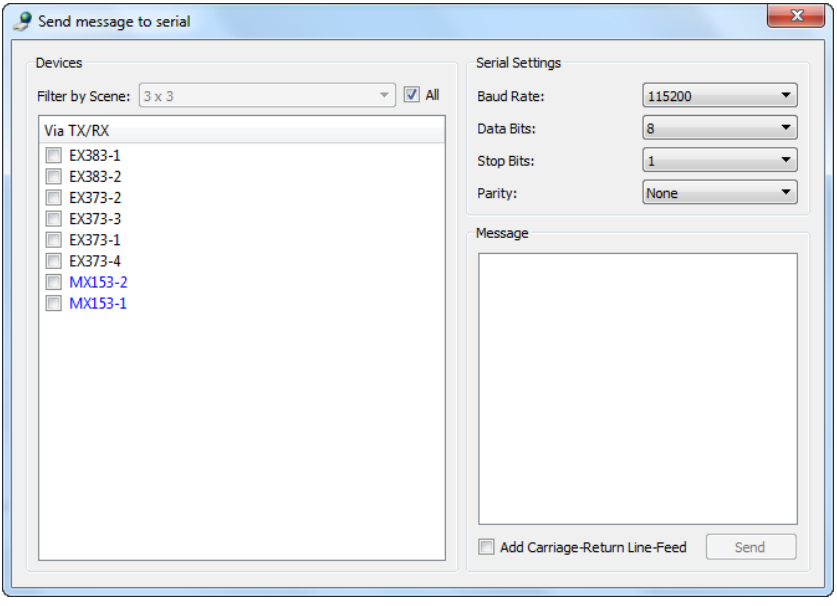
To perform this operation, click **IR** in the tool bar and follow the on-screen instructions.



RS232 Remote Control

The control software allows the user to easily send RS232 commands to a RS232 device for device configuration and control.

To perform this operation, click **Serial** in the tool bar and follow the on-screen instructions.

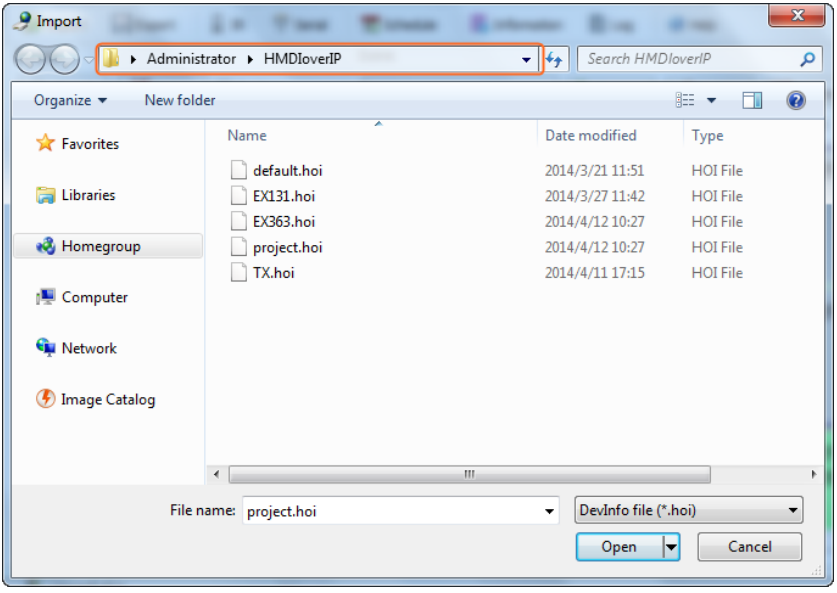


Configuration Files Management

When the control software is closed, the Windows operating system would save the configuration file **project.hoi** to the working directory of current user.

Viewing the Default Configuration File Directory

You can view the default directory from the **Import** dialog box displayed by clicking **Import** on the tool bar.

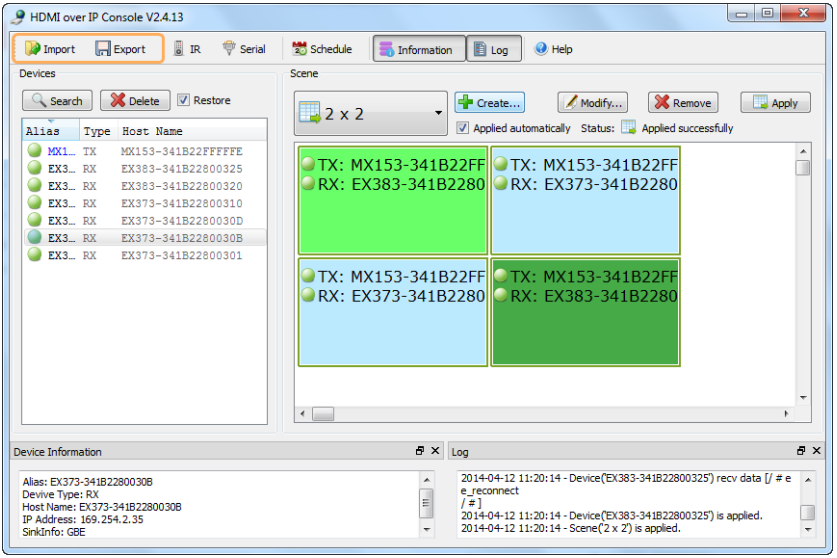


When running the control software next time, it would automatically read the configuration file **project.hoi**. Do not modify or delete the **project.hoi**. Otherwise, errors may be encountered during program running.

Export or Import the Configuration File

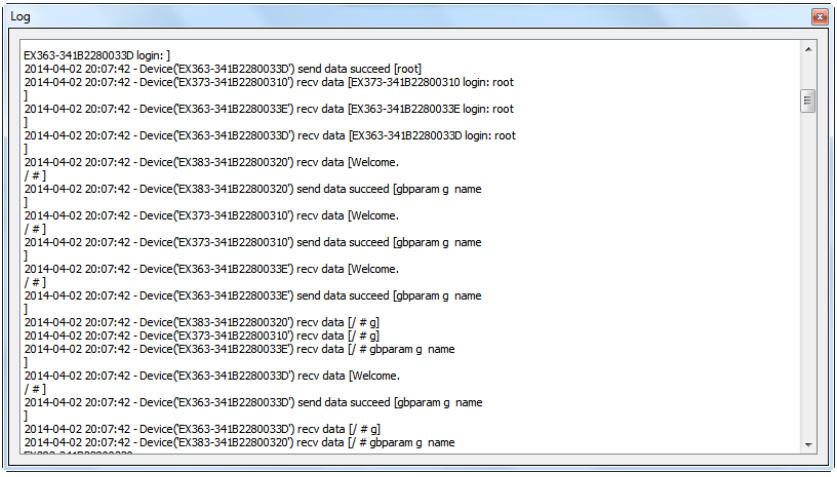
On the home screen of the control software, you can:

- Click **Export** on the tool bar to save the current devices and scene configuration file to a specified directory.
- Click **Import** on the tool bar to import the saved configuration file from this directory.



Logs

The logs have recorded the software operation and device communication information, which can be used for troubleshooting. To view the logs, click **Log** in the tool bar.



Configuration Examples

Switching Inputs in One Encoder

N143 allows up to two HDMI inputs, one VGA input, 1 CVBS input to be switched to one HDMI and one VGA outputs. To perform this operation, do as follows.

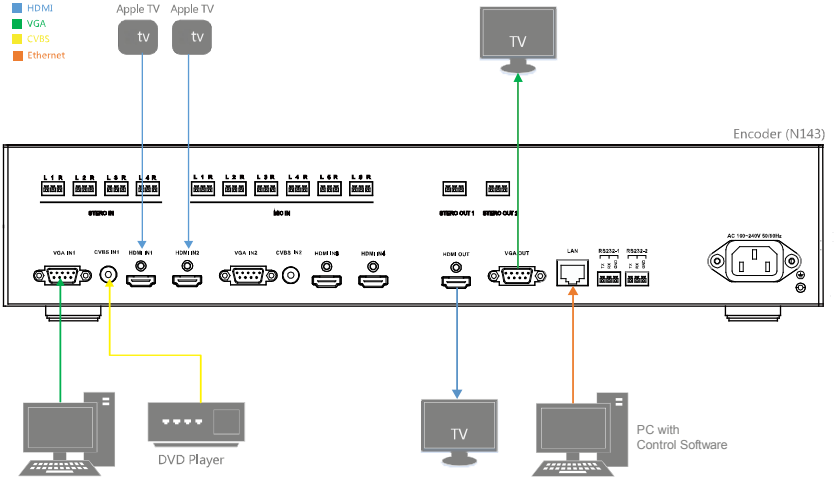
Preparations

- One N143
- Four HDMI source devices
- Two sinks
- Two computers
- One CAT5e/6 cable, three HDMI cables, two VGA cables and one CVBS cable.

Hardware Connection

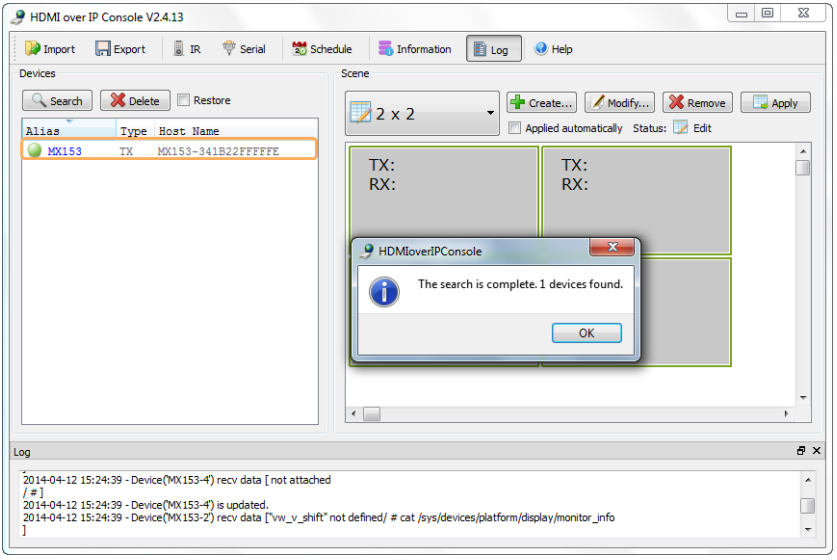
1. Connect one DVD player, one computer, two Apple TVs to the N143 via two HDMI cables, one CVBS cable and one VGA cable.

2. Connect two TVs to the N143 via one HDMI cable and one VGA cable.
3. Connect your computer installed with the control software to the N143 with a CAT5e/6 cable.
4. Connect all the devices to the power supplies and power them on.

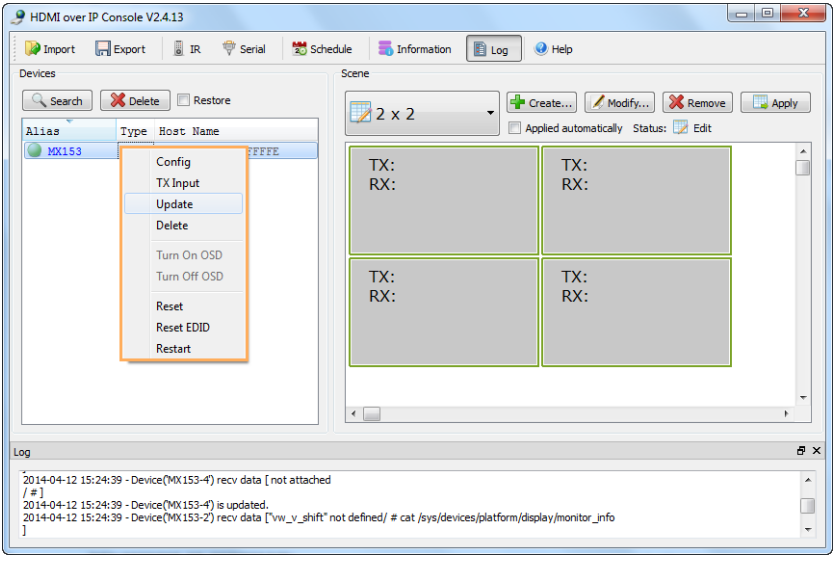


Operation

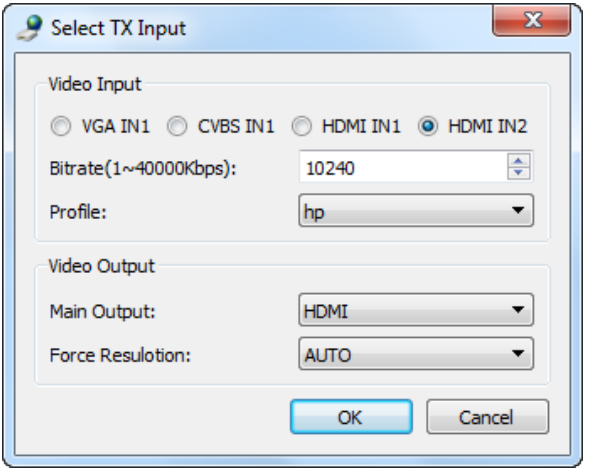
1. Double-click **HDMIoverIPConsole.exe** to launch the control software; Click **Search** as shown below to start searching TX/RX, and one MX153 (N143) is found.



2. Right click MX153 to display the shortcut menu.



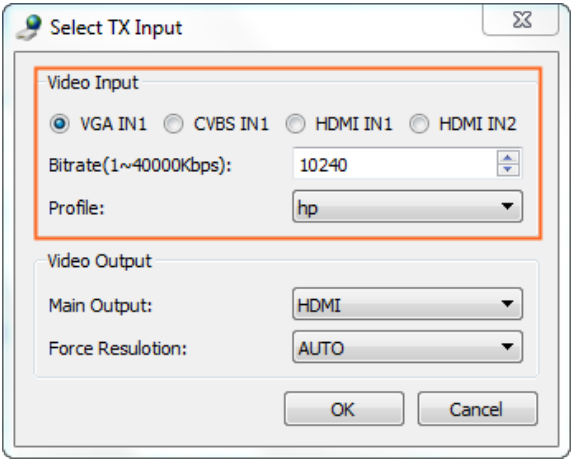
3. Choose **TX Input** to display **Select TX Input** dialog box.



4. Select a source type between HDMI, VGA and CVBS inputs; Set the bitrates; Set a profile.

Note:

We would recommend that you keep the bitrate and profile as default values.



5. Click **OK**.

Setting a Matrix

You can set a matrix through the control software to control and manage all the connected devices in a network. This section takes a 2 x 2 matrix as an example.

Preparations

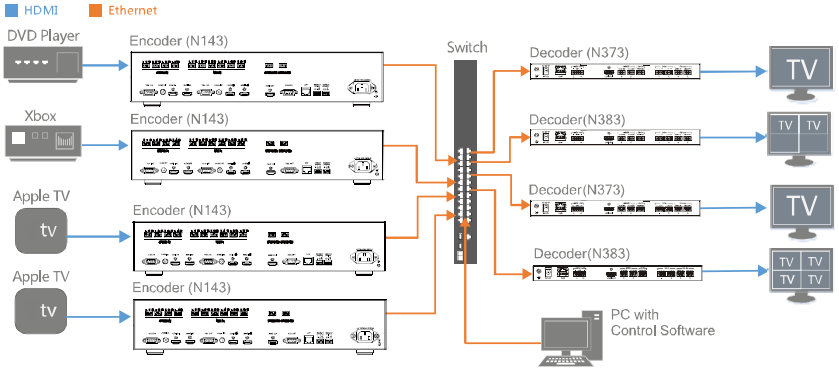
- Four encoder N143s
- Two decoders N373s and two decoders N383s
- One 10/100Base-T Ethernet switch.
- Four HDMI source devices
- Four sinks
- One computer installed with the control software
- Eight HDMI cables and nine CAT5e/6 cables

Hardware Connection

1. Connect one DVD player, one Xbox, two Apple TVs to four N143s via four HDMI cables.
2. Connect the N143s to the 10/100Base-T Ethernet switch with four CAT5e/6 cables.
3. Connect four TVs to the N373s and N383s via four HDMI cables.
4. Connect the N373s and N383s to the switch with four CAT5/6 cables.
5. Connect your computer to the switch with a CAT5e/6 cable.
6. Connect all the devices to the power supplies and power them on.

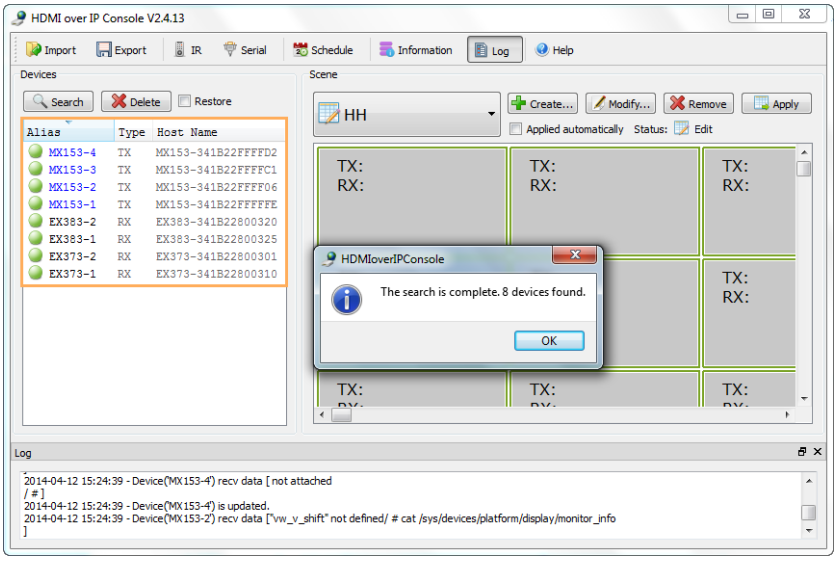
Note:

If the switch doesn't support PoE function, connect the N373s and N383s to the power supplies.

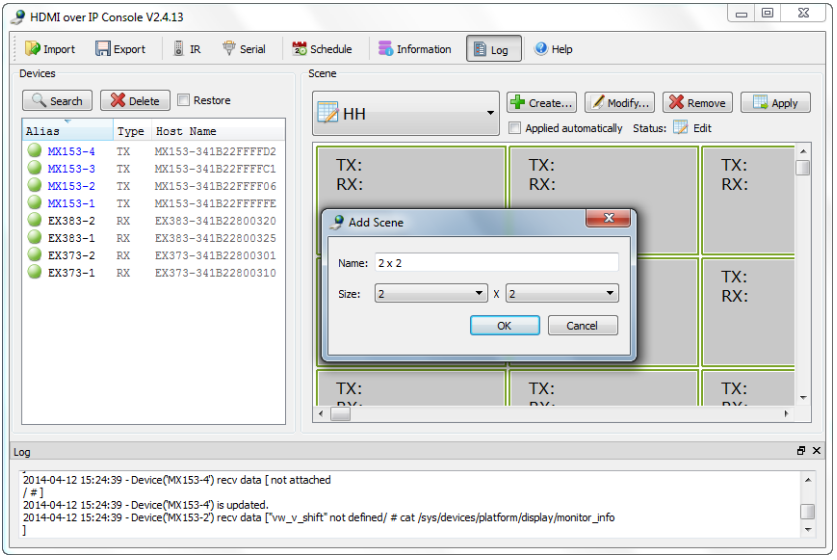


Operation

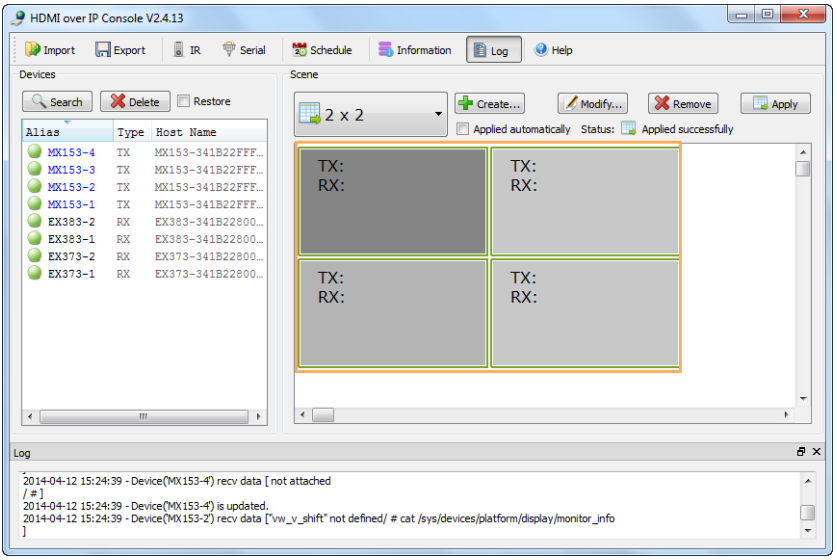
1. Double-click **HDMIoverIPConsole.exe** to launch the control software; Click **Search** as shown below to start searching TX/RX, and four MX153s (N143), two EX373s (N373) and two EX383s (N383) are found.



2. Click **Create** to create a 2 x 2 configuration scene.

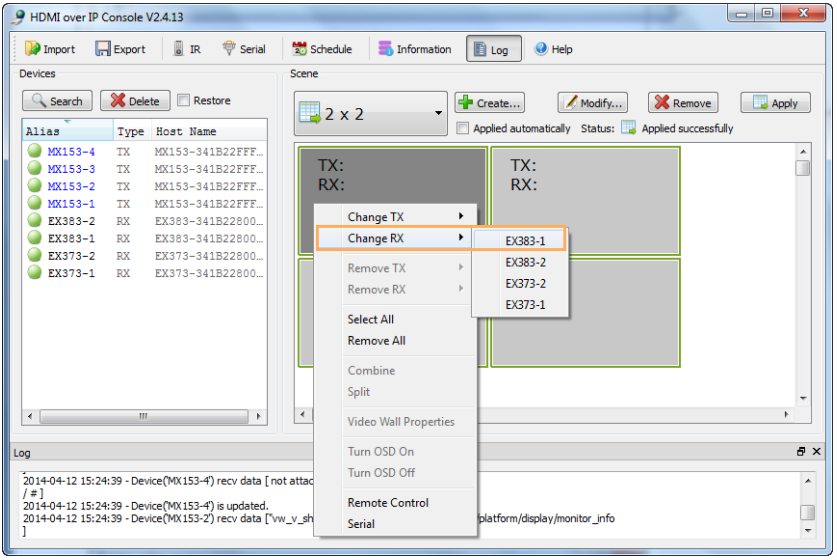


3. Click **OK**, a 2 x 2 configuration scene is created as shown below.

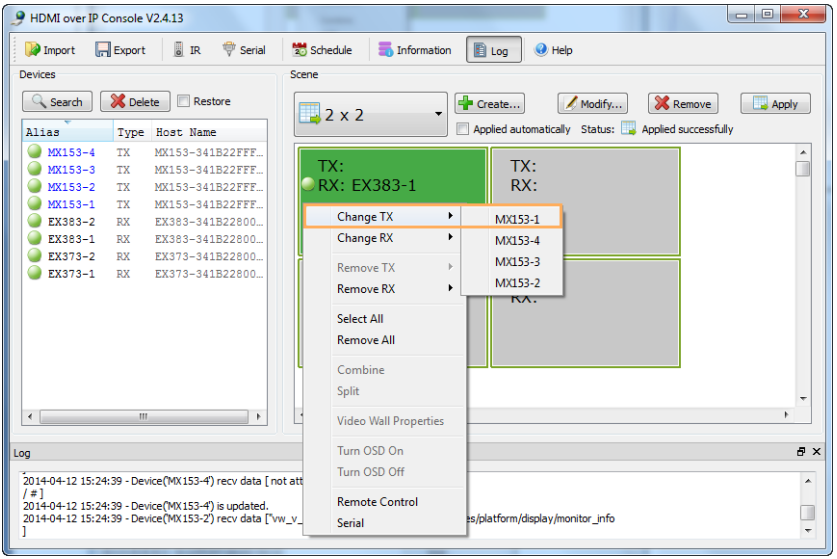


4. Configure the intersection between TX and RX in different cells in the **Scene** area.

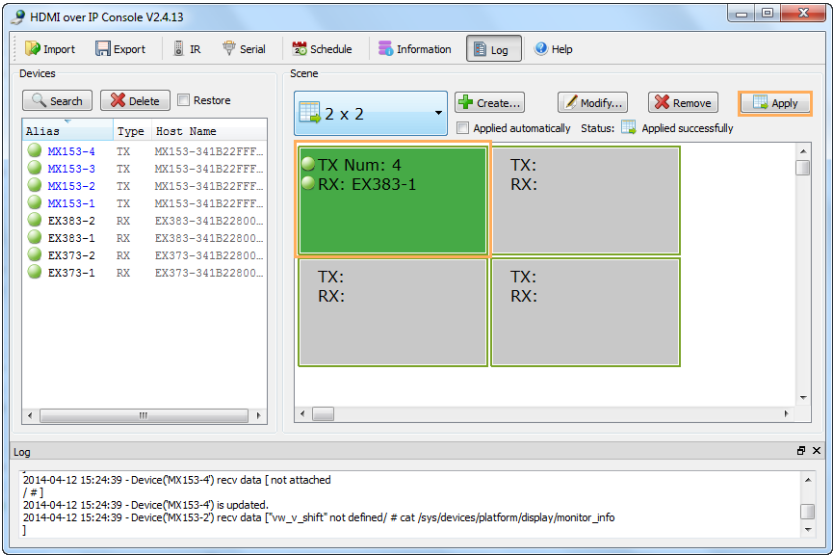
   1) Right click the first cell, choose **Change RX** and then **RX383-1**.



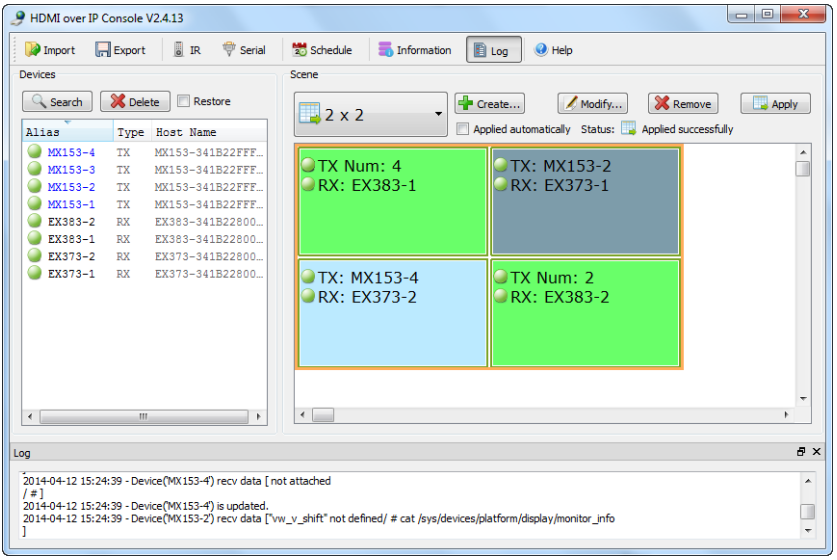
   2) Right click the first cell, choose **Change TX** and then **MX153-1**.



3) Repeat the above steps to select **MX153-2**, **MX153-3**, **MX153-4** for **EX383-1** to configure the intersection between TX and RX in the first cell. And click **Apply** to make the changes to TX and RX take effect.



4) Configure the intersection between TX and RX in other cells in the same way. The final scene is created as below.



Then you can see the sinks connected to N373s show a complete picture filling the screen, the sinks connected to N383s show multiple complete pictures with the unoccupied parts shows nothing.

Note:

- If N383 is linked to a single N143, the sink will show a complete picture filling the screen as that connected to N373.
- After a 2 x 2 matrix is created, you can change TX and RX using the control software to enjoy different viewing effects. In addition, you can also switch between different sources in a certain N143, if it is connected to multiple sources via HDMI, VGA or CVBS ports.

Setting a Video Wall

N373 supports the video wall function in the single host mode. You can combine multiple cells of N373s to show the same video source. This section

takes a 2 x 2 configuration scene as an example.

Preparation:

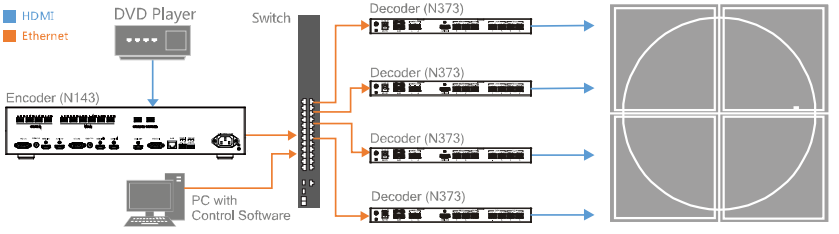
- One encoder N143
- Four decoders N373s
- One 10/100Base-T Ethernet switch.
- One HDMI source device
- Four sinks
- One computer installed with the control software
- Five HDMI cables and six CAT5e/6 cables

Hardware Connection

1. Connect one DVD player to the N143 via a HDMI cable.
2. Connect the N143 to the 10/100Base-T Ethernet switch with a CAT5e/6 cable.
3. Connect four TVs to the N373s via four HDMI cables.
4. Connect the N373s to the switch with four CAT5/6 cables.
5. Connect your computer to the switch with a CAT5e/6 cable.
6. Connect all the devices to the power supplies and power them on.

Note:

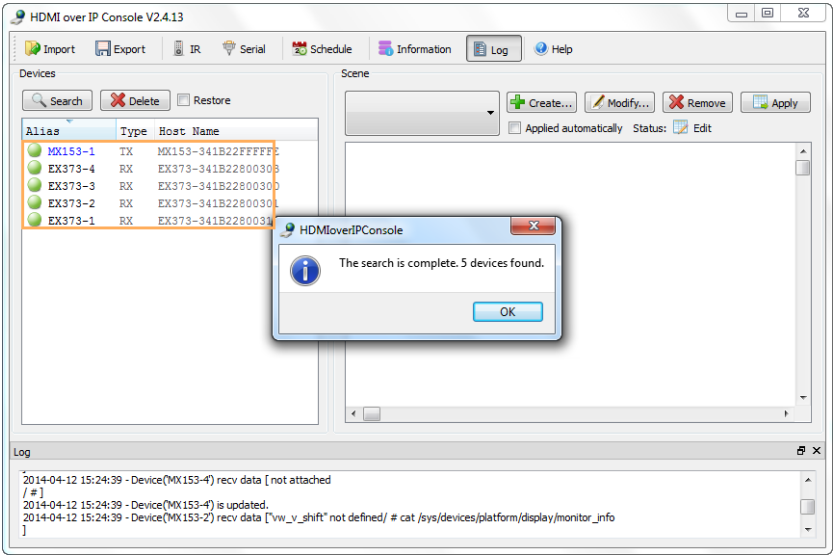
If the switch doesn't support PoE function, please remember to plug in the power adapters of Transmitters/Receivers



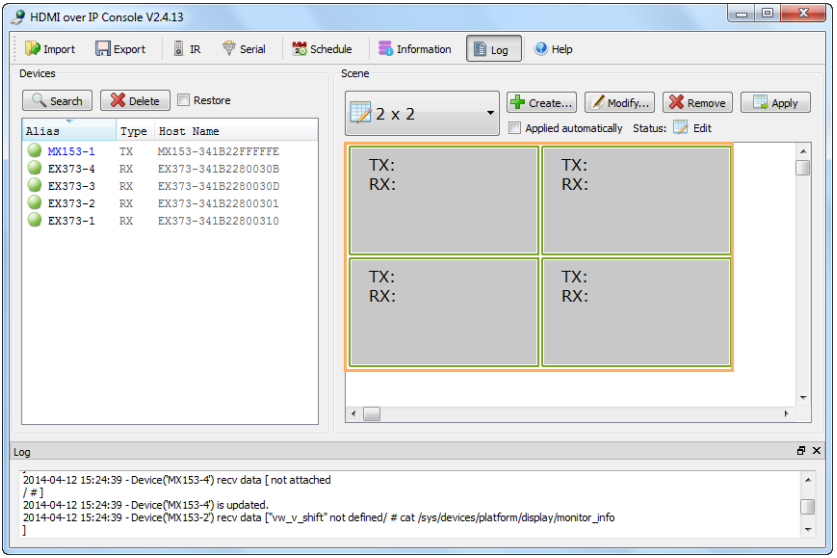
Operation

1. Double-click **HDMIoverIPConsole.exe** to launch the control software; Click **Search** as shown below to start searching TX/RX, and one MX153

(N143) and four EX373s (N373) are found.

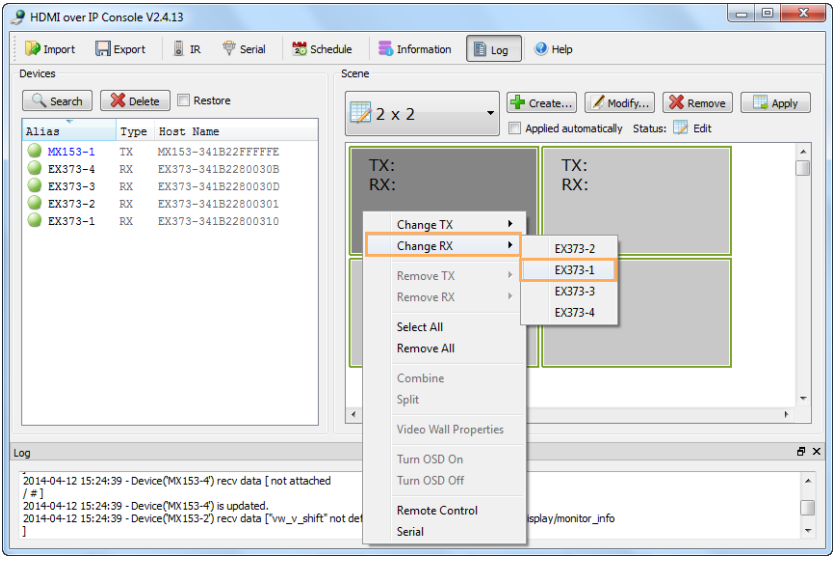


2. Click **Create** to create a 2 x 2 configuration scene. And click **OK**, a 2 x 2 configuration scene is created as shown below.

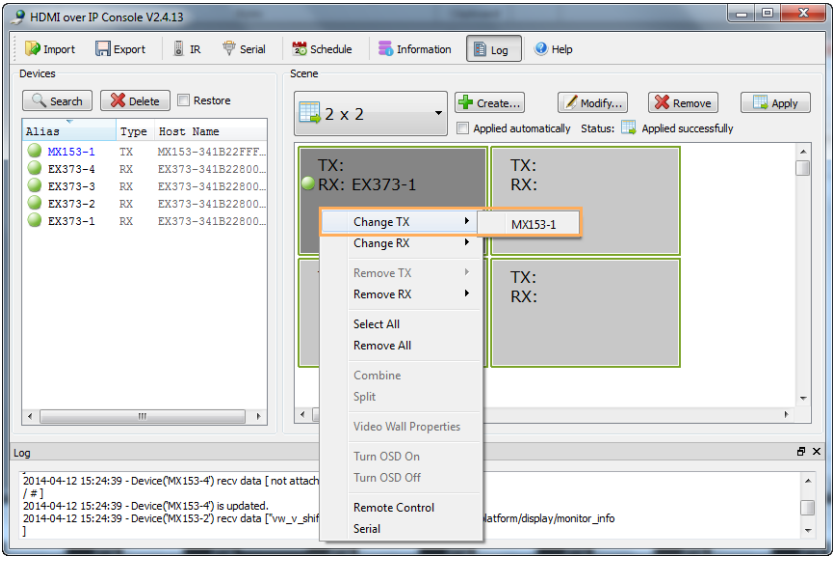


3. Configure the intersection between TX and RX in different cells in the **Scene** area.

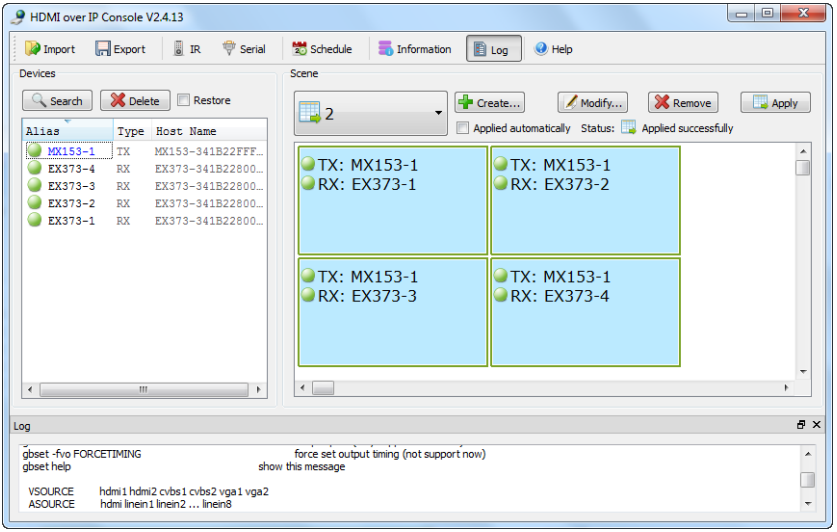
1) Right click the first cell, choose **Change RX** and then **EX373-1**.



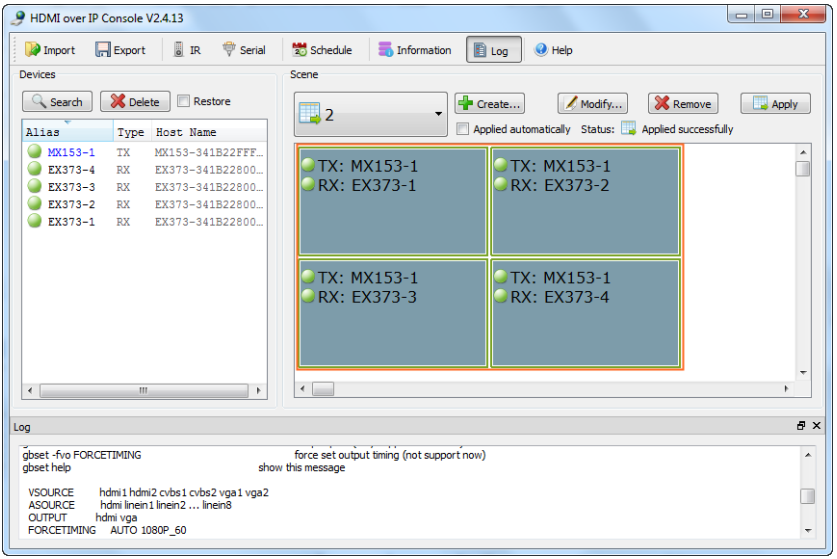
2) Right click the first cell, choose **Change TX** and then **MX153-1**.



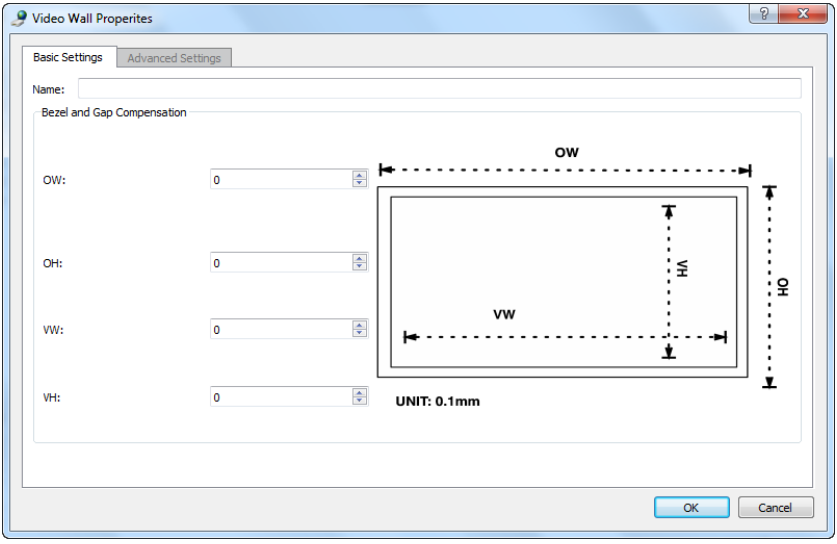
3) Repeat the above steps to select **MX153-1** for **EX373-2**, **EX373-3**, **EX373-4** respectively in the other cells. And click **Apply** to make the changes to TX and RX take effect. The final scene is created as below.



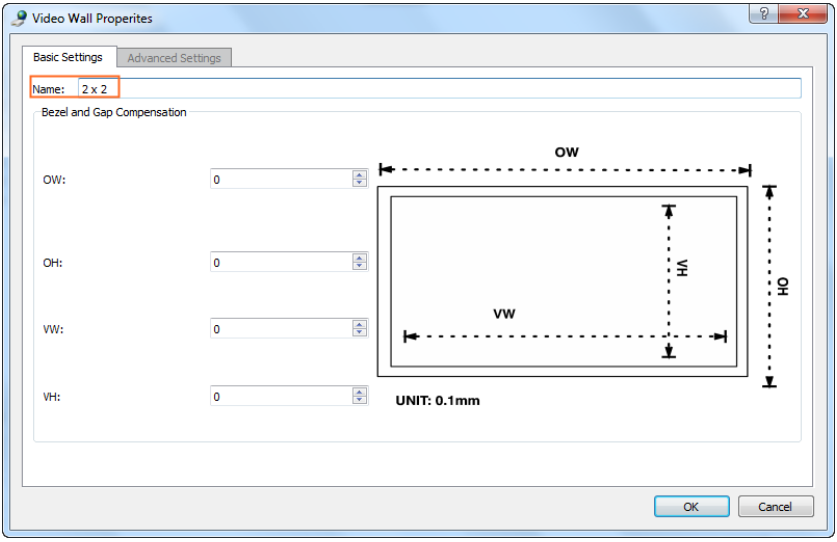
4. Right click on any cell, and choose **Select All** (or press **Ctrl**+**A**) to select all the cells.



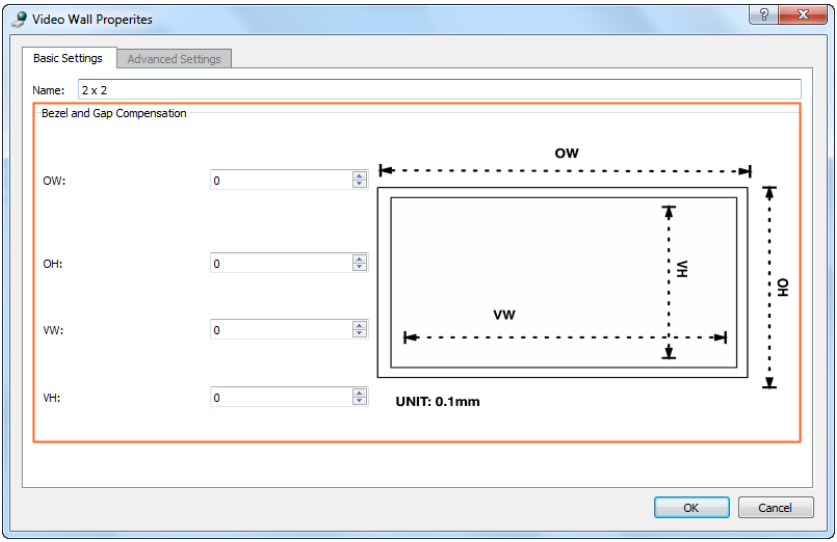
5. Right click on any cell and choose **Combine** to display the **Video Wall Properties** window.



6. Create a name, such as **2 x 2**, for the video wall.



7. Enter the measurements of the sink **Bezel and Gap Compensation**. By default, keep the OW, OH, VW, VH values unchanged. And then click **OK**.

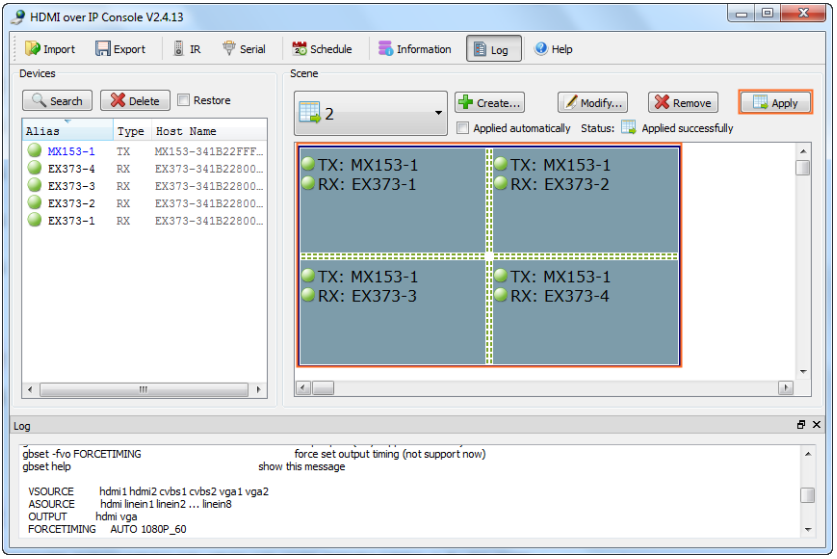


Note:

It is recommended that you use the sinks with the same size for the intended viewing effects.

GUI Element	Description
OW	Indicates outside width of the sink in mm
OH	Indicates outside height of the sink in mm
VW	Indicates inside width of the sink in mm
VH	Indicates inside height of the sink in mm

8. Click **Apply** to make the video wall settings take effect. The video wall is configured successfully as shown below. You can identify the video wall is created in the control software by the double green lines across this 2 x 2 configuration scene.



Note:

You can easily right click on the video wall created and choose **Change TX**, this will allow simple switching of any of the searched TX in the listed devices to be displayed across the video wall.

Setting Video Wall Properties

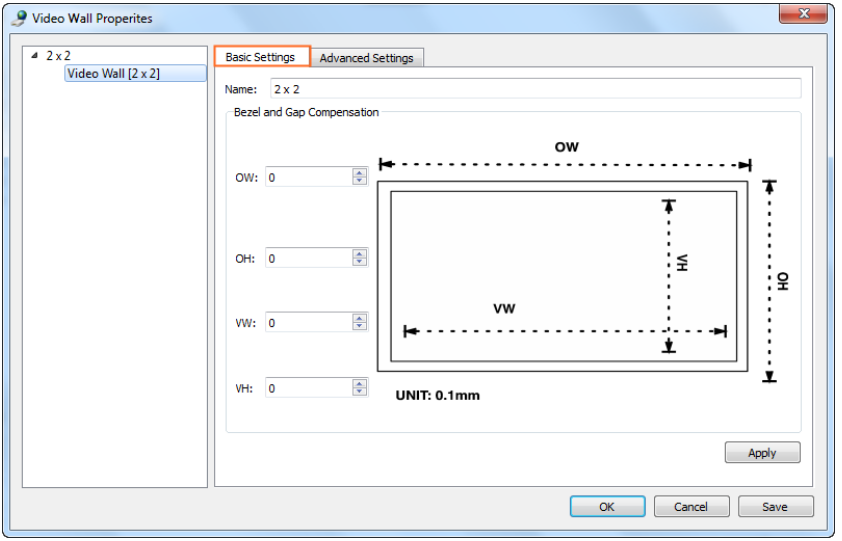
The control software provides the basic and advanced settings for video wall. You can configure the settings on all the sinks simultaneously or precisely set on each sink to perform the correct configuration and outcome for any project.

Basic Settings

You can right click the video wall created and choose **Video Wall Properties**, the **Video Wall Properties** window is displayed. Then click **Basic Settings** tab, this will allow you to simultaneously configure the settings on all the sinks.

Note:

We would recommend you leave the settings as default values.



GUI Element	Description
Name	Indicates the name of the video wall.
OW	Indicates outside width of the sink in mm

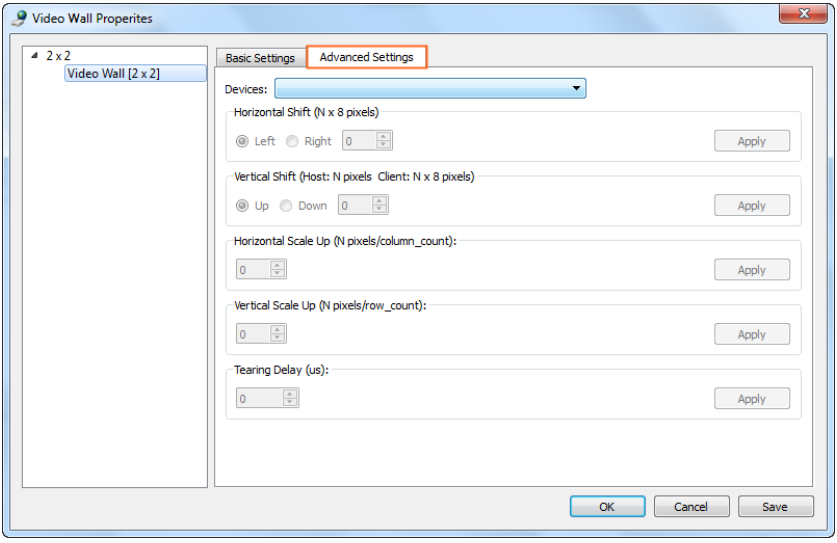
GUI Element	Description
OH	Indicates outside height of the sink in mm
VW	Indicates inside width of the sink in mm
VH	Indicates inside height of the sink in mm

Advanced Settings

Click **Advanced Settings** tab, this will allow you to precisely configure the settings on each sink.

Note:

We would recommend you leave the settings as default values.

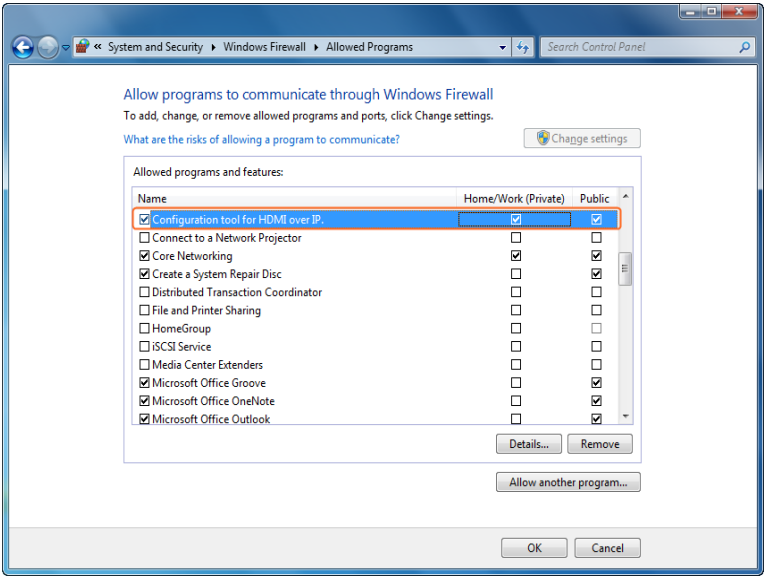


Troubleshooting

1. Why **HDMI over IP console** or **Maintaintool** cannot find any devices?

- Check the Windows Firewall.

  Taking Windows 7 as an example: Click **Start** menu, go to **Control Panel** > **System and Security** > **Windows Firewall** > **Allowed Programs**, highlight **Configuration tool for HDMI over IP**, check **Home/Work (Private)** and **Public**.



- Check the IP address and subnet mask of your computer. The network segment for IP address is 169.254.*x.x* and the subnet mask is 255.255.0.0, the computer and TX/RX should be in the same network segment. For more information, see Setting a Static IP on Your Computer.
- Check the IGMP snooping status in the switch. This function should be enabled.

2. Why TV shows no picture with RX connected?

- Check that power supplies of all the devices are powered on.
- Check that all the cables are qualified and connected properly.
- Check that the sink works properly, and that source devices have normal signals output.
- Check that the output resolutions of the source devices are supported by TX, which supports the following input resolutions.

TX port type	Supported input resolutions of TX
HDMI	480i, 480p, 576i, 576p, 720p, 1080i, 1080p
VGA	640x480@60, 800x600@60, 1024x768@60, 1280x720@60, 1280x768@60, 1280x800@60, 1280x1024@60, 1360x768@60, 1400x1050@60, 1440x900@60, 1600x1200@60, 1680x1050@60, 1920x1080@60, 1920x1200@60
CVBS	480i@NTSC

- Check that TX has been switched to the right source type connected via the HDMI, VGA or CVBS ports.
- Check that TX and RX are linked based on status of the **Link** indicators on RX. For details, see description in Panel. If link exceptions exist, link TX and RX using the control software on your computer.
- Check that your sink is switched to the correct source input mode, such as switching to HDMI 1 if HDMI 1 interface is connected to the RX via a HDMI cable.
- Check that no compatibility issues exist between RX and sink. If so, replace the sink with other models.
- Check that power supplies of all the devices are powered on.
- The switch supports IGMP snooping and this function is enabled.

Note:

For more information, see *HDIP Product FAQ*.

Product Service

Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzine to clean this unit.

Provided Service

1. **Damage Requiring service:** The unit should be serviced by qualified service personnel if:
   - The DC power supply cord or AC adapter has been damaged;
   - Objects or liquids have gotten into the unit;
   - The unit has been exposed to rain;
   - The unit does not operate normally or exhibits a marked change in performance;
   - The unit has been dropped or the cabinet damaged.
2. **Servicing Personnel:** Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized servicing personnel.
3. **Replacement parts:** When parts need replacing ensure the service uses parts specified by the manufacturer or parts that have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock, or other hazards.
4. **Safety check:** After repairs or service, ask the service to perform safety checks to confirm that the unit is in proper working condition.

Mail-In Service

When shipping the unit, carefully pack and send it prepaid, adequately insured and preferably in the original carton. Include a letter detailing the complaint and provide a daytime phone and/or email address where you can

be reached.

If repair is needed during the limited warranty period the purchaser will be required to furnish a sales receipt/proof of purchase indicating date of purchase, amount paid and place of purchase. Customer will be charged for the repair of any unit received without such proof of purchase.

Warranty

If your product does not work properly because of a defect in materials or workmanship, Grandbeing Company (referred to as “the warrantor”) will, for the length of the period indicated as below, （Parts (1) Year， Labor(90) Days）which starts with the date of original purchase (“Limited Warranty period”), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor.

During the “Labor” Limited Warranty period there will be no charge for labor. During the “Parts” warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

Warranty Limits and Exclusions

1. **This Limited Warranty ONLY COVERS failures due to defects in materials or workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage.** The Limited Warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, maladjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or service by anyone other than a Factory Service

Center or other Authorized Service, or damage that is attributable to acts of God.

2. **There are no express warranties except as listed under "limited warranty coverage". The warrantor is not liable for incidental or consequential damages resulting from the use of this product, or arising out of any breach of this warranty.** (As examples, this excludes damages for lost time, cost of having someone remove or re-install an installed unit if applicable, travel to and from the service location, loss of or damage to media or images, data or other recorded content. The items listed are not exclusive, but are for illustration only.)
3. **Parts and service, which are not covered by this limited warranty, are your responsibility.**

Glossary

Acronym	Complete Term
AC	Alternating Current
BP	Baseline Profile
CVBS	Composite Video Broadcast Signal
DHCP	Dynamic Host Configuration Protocol
EDID	Extended Display Identification Data
HDMI	High Definition Multimedia Interface
HP	High Profile
IR	Infra-red
LAN	Local Area Networks
MP	Main Profile
OSD	On Screen Display
PoE	Power over Ethernet
RX	Receiver
TX	Transmitter
VGA	Video Graphics Array

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